

AMENDMENT UNDER 37 C.F.R. § 1.111

U.S. Application No. 09/833,815

Q64020

REMARKS

Claims 1-5 and 7 are all the claims pending in the application. Claims 1-5 and 7 are amended to recite "substantially unshrinkable sleeve".

Entry of the Amendment is respectfully requested along with reconsideration and review of the claims on the merits.

Claim Rejections - 35 U.S.C. § 112

Claims 1-5 and 7 are rejected under 35 U.S.C. § 112, first paragraph, as assertedly failing to comply with the enablement requirement for the reasons given in the Office Action.

The Examiner states that the limitation of an "unshrinkable sleeve" is non-enabling because typical elastomer materials will shrink when heated or when heat and pressure is applied. The Examiner requests Applicants to submit an affidavit showing how the elastomeric sleeve material is not shrinkable when heated or melted.

The Examiner states that the claims require the unshrinkable sleeve to be "heat welded" onto the surface of the roller, and it is unclear to the Examiner what "heat welded" encompasses.

Applicants respond as follows.

Claims 1-5 and 7 are amended to recite "substantially unshrinkable sleeve". Applicants point to the specification, for example, bridging paragraph on pages 4-5, which describes the "unshrinkable sleeve" as being "substantially unshrinkable" and preferably formed from a PA, a PAE, or a fluorine-containing polymer compound or fluorine-containing elastomer, such as PFA, PTFE, or ETFE. The unshrinkable sleeve is an elastomer rather than a resin. The Examiner's mistaken impression that the sleeve is strictly "unshrinkable" is not in accordance with the

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disclosure. The term "unshrinkable" does not strictly mean that the sleeve will not shrink when heated, rather, it is "substantially unshrinkable" as clarified by the present amendment to the claims.

Applicants submit concurrently herewith a Declaration Under 37 C.F.R. § 1.132 by a co-inventor, Shinobu Hasegawa, explaining the meaning of the term "unshrinkable sleeve".

The Declaration substantiates that the unshrinkable sleeve (tube) used in the roll of the present invention does not substantially shrink under heat, and thus can be distinguished from a shrinkable sleeve (tube).

An unshrinkable sleeve (Sample 1) and a shrinkable sleeve (Sample 2) were individually tested in a thermal analyzer operating in a tensile mode, whereby their heat shrinkage (%) was measured. As shown in Fig. 1, when the shrinkable sleeve (Sample 2) was heated to 200°C, it shrank by about 4%, whereas when the substantially unshrinkable sleeve (Sample 1) was heated to 200°C, virtually no shrinkage was observed (i.e., shrinkage was less than about 1%). These results demonstrate that the thermal shrinkage (%) of a shrinkable sleeve is quite different from that of an unshrinkable sleeve, and that the unshrinkable sleeve is substantially unshrinkable under heat.

In this connection, as may be learned from the copy of Gunze Ltd.'s homepage attached hereto, the terminology "unshrinkable sleeve" is a technical term commonly used by those skilled in the art to contrast with "shrinkable sleeve." The two samples in the Declaration were products made of fluorocarbon resin PFA obtained through Gunze Ltd.

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Furthermore, the term "unshrinkable" in the context of the disclosure refers to a sleeve made of an elastomer that is substantially unshrinkable and having an inner diameter smaller than that of the outer diameter of the core roller, which sleeve is press fit around the core roller.

After being "heat welded", for example, by heating at 162 °C for 60 minutes (as disclosed on page 7, lines 6-8 of the specification), to produce a welding force of 0.1 kg/cm or more, the sleeve is tightly joined to the core roller. The unshrinkable sleeve is heated around 150-160°C, for example, by heating at 162°C for 60 minutes in Example 1.

In regards to the Examiner's question as to what "heat welded" encompasses, Applicants explain as follows. First the specification describes that "[t]he core roller was coated with an unshrinkable sleeve...." And "[t]he *resultant* core roller was heated...to thereby heat-weld the sleeve onto the core roller...." (emphasis added) (See page 7, lines 4-8). Here, the "*resultant* core roller" means the core roller coated with unshrinkable sleeve; and "[t]he resultant core roller was heated...to thereby heat-weld the sleeve onto the core roller..." means the core roller *coated with unshrinkable sleeve* was heated...to thereby heat-weld the sleeve onto the core roller. Therefore, it is clear that after being heated, the unshrinkable sleeve on the core roller melts or softens at the contact face, so that the sleeve is welded onto the core roller.

Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection under 35 U.S.C. § 112, first paragraph, and allowance of Claims 1-5 and 7 is earnestly solicited.

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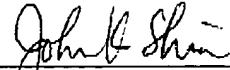
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Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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